Appendix D
DETAILED AFFECTED ENVIRONMENT DATA

Affected Environment—The environmental impact statement shall succinctly describe the area(s) to be affected or created by the alternatives under consideration. (40 CFR 1502.15).

This appendix presents the details of the affected environment of the three watersheds analyzed for cumulative impacts in the EWP Program PEIS, the six rural communities analyzed for socioeconomic and related human impacts, and the additional sites evaluated for aquatic, wetland, floodplain, riparian, and terrestrial community impacts.

D.0 INTRODUCTION

The typical EWP Program watershed restoration practice is installed in a relatively small watershed (less than 400 square miles), often in the upper reaches of the watershed, and usually in a rural community. Exceptions occur, such as the case of the 1993 Upper Mississippi floods where work was done on the mainstem river's levees and the Eighth Street Burn project on the rural outskirts of Boise, Idaho. Nevertheless, small watersheds and rural communities are the focus of the impacts analysis for this PEIS. It evaluates individual practices and multiple-practice impacts at project sites for biological and ecological impact, impact of these projects on the local communities, and cumulative impacts of EWP Program projects and all other activities in major (8-digit) watersheds.

The analysis sites were selected from EWP Program work completed in the 50 states and the territories to reflect these factors:

- A variety of different project types that would represent the range of watershed impairments and EWP Program restoration practices
- A range of geography, topography, and climate, representing influences of different weather and terrain and frequencies of various disaster types
- A range of rural communities, from small farms to rural portions of metropolitan areas
- A range of watershed influences, from relatively undeveloped to developed
- A good source of environmental data about each site and its watershed.

The selected sites, rural communities, and watersheds used in the cumulative effects analysis are listed in Table D.0-1. Fifteen project sites in 12 locations were selected to represent various impairments and typical practices. Six locations represent the range of rural community types. Three locations represent the cumulative effect types, where activities throughout the watershed were factored into the analysis.

Table D.0-1 EWP Program Project Sites Where Impacts on the Biotic Community, Human Community, and Cumulative Watershed Were Analyzed

Location	Impacts of EWP Program Practices on Biotic Communities	Impacts of EWP Program Projects on Human Resources of Rural Communities	Impacts of EWP Program and Other Actions on Watersheds and Economic Regions
Boise Foothills north of Boise, ID	Burn Area on Watershed Above City	Recent Developments in Watershed and City	Boise River Watershed Ada County Region
Buena Vista, VA (small city on the Maury River)	4 Streams Flowing From Watershed Above City	City of Buena Vista	Maury River Watershed Rockbridge County Region
East Nishnabotna River Fremont Co. Montgomery Co., IA	3 Sites on River and Tributaries Easements	City of Shenandoah, IA, and Nearby Farms Easements	East Nishnabotna Watershed Fremont Co.
Bethel Road site, Hall Co., GA	Tornado Debris in Stream	Two Small Farms in Rural Community	
Rocky Run, Rockingham Co., VA	Streambank Repair Site Hypothetical Easement	Cluster Community of Rocky Run	
Rose River site, Criglersville, Madison Co., VA	Rock Weirs Hypothetical Easement	Hypothetical Easement	
San Lorenzo River - Santa Cruz County, CA	Soil-Bioengineering to Protect Banks		
Dry River, VA	Switzer Dam, Spillway Damaged by Hurricane Fran		
Antelope Valley, CA	Drought with Life-threatening Sandstorms		
Medicine Creek Livingston Co., MO	Setback Levee with Floodplain Easement		
Platte River Platte Co., MO	Floodplain Easement		
Missouri River St. Charles Co., MO	Sediment Deposition Removal		
Plumtree Avery Co., NC	Fluvial Geomorphology		
Clarendon, TX	Sewage Treatment Plant on Floodplain		
Bauxite Natural Areas, AR	Damage From Tornado		
Alexander, AR	Household Debris From Tornado		

D.1 CUMULATIVE IMPACTS OF EWP PROGRAM PRACTICES ON WATERSHEDS

EWP Program practices carried out as a result of sudden impairments in three example watersheds —the Buena Vista-Maury in Virginia, the Eighth Street Burn Area-Lower Boise in Idaho, and the East Nishnabotna in Iowa——were chosen for cumulative impact analysis. These were selected because (explained more fully in Appendix A) they include the best examples of the range of possible EWP Program practice situations. An intensive analysis of cumulative impacts in those watersheds was preferable to a more cursory examination of all example watersheds. Buena Vista and Boise represented the use of EWP Program practices in areas of potentially high interaction with a variety of land uses because of their urban settings and steep-slope environments. East Nishnabotna represented an almost totally agricultural land use.

The Virginia and Idaho watersheds in which the EWP Program practices were carried out (USGS 12-digit watersheds) and the larger 8-digit watersheds evaluated by EPA were relevant as contexts for evaluation. The importance of setting watershed and resource boundaries in the cumulative impact analysis is discussed in Appendix A.

D.1.1 Boise, Idaho – Eighth Street Burn Area-Lower Boise River Watershed

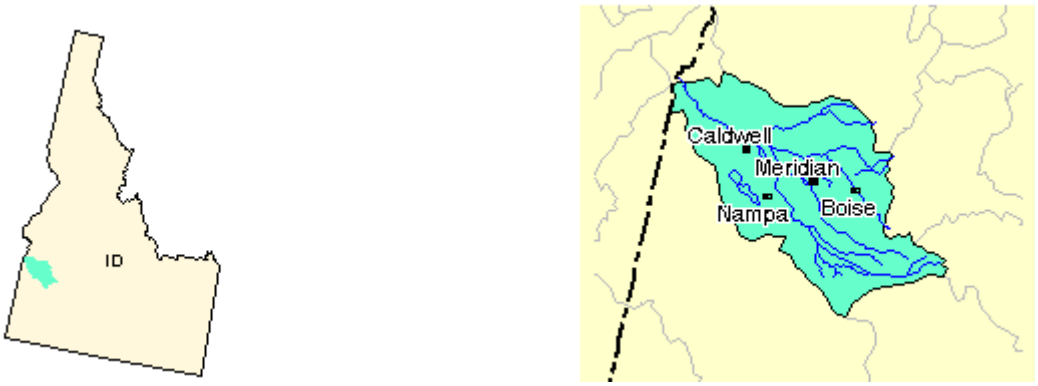

Fig. D.1-1 Location Map and Watershed Configuration of Lower Boise USGS HUC Unit 17050114, overall EPA watershed rating: 5

Called the Eighth Street Burn, this area is part of what is known as the Boise Front. Of its approximately 15,300 acres, 4,180 acres is Bureau of Land Management (BLM) administered public land, 2,120 acres is state of Idaho land, 3,160 acres is Boise National Forest land, and the remaining 5,840 acres split among private ownership, the City of Boise, and Ada County (BLM, et al., 1996).

D.1.1.1 Disaster Event

On August 26, 1996, a human-caused wildfire burned essentially all vegetation on 15,300 acres of the Boise foothills, severely impairing the area's ability to retard runoff (Fig. D.1-1). In the aftermath, an NRCS interagency team estimated that as little as a two-year precipitation event could result in debris torrents and flooding of the 100-year floodplain. The team based its estimate on the experience of similar flooding after a similar fire in the area in 1959 (BLM, et al., 1996).

D.1.1.2 Site Description

The area is primarily shrub steppe habitat in the foothills, with Douglas fir stands on the upper slopes. These communities provided cover and forage for numerous game and nongame species, and were a particularly critical habitat for deer and elk. The area affected by the fire contains crucial winter habitat for more than 700 mule deer and more than 200 elk. The area is known also for its biodiversity; it provides both home range and migratory routes for approximately 250 species of wildlife. In addition, the area also contains the habitat of several plant and animal species considered "sensitive" by BLM and "species of special concern" by the state of Idaho (BLM, et al., 1996).

Fig. D.1-2 Eighth Street Burn area after critical area treatment

The area is of high scenic and recreation value, as well. The Boise Front is the scenic backdrop for the State Capitol and offers recreational opportunities for more than one-third of the state's population. The fire affected 37 miles of the area's 75 miles of hiking trails (BLM, et al., 1996) (see Fig. D.1-3).

Of principal concern was the Boise Front watershed's susceptibility to catastrophic erosion and flooding. The combination of steep slopes and highly erodible granitic soils in more than 90 percent of the burn area make the area extremely susceptible to erosion with the loss of vegetative cover resulting from the fire (See Fig. D.1-2). As many as 4,500 residents within the floodplain, as well as the state capitol, medical facilities, utilities, schools, and telecommunications, were at risk from flooding as a result of the fire. The potential loss from a 100-year thunderstorm was estimated at $144 million (BLM, et al., 1996). The concerns expressed about catastrophic erosion and flooding deemed it appropriate to perform the cumulative impact analysis in the Lower Boise River watershed.

Fig. D.1-3 Boise, Idaho Eighth Street Burn EWP Program site map, outlined in red

D.1.1.3 Baseline Environmental and Socioeconomic Conditions in the Watershed and the Communities

Baseline environmental conditions encompass both biological and socioeconomic situations. Biological conditions interact within the immediate burn area watersheds (Cottonwood, Crane, Curlew, and Dry Creeks, and Freestone and Hulls Gulches—11-digit HUCs) and into the Lower Boise watershed (8-digit HUC). Socioeconomic and other human resource interactions occur both within and outside the watersheds. Baseline biological environmental conditions are summarized in Table D.1-1. Baseline socioeconomic conditions for the Boise communities are summarized in Table D.1-2.

Table D.1-1 Eighth Street Burn Area and Lower Boise Watershed Baseline Environmental Conditions

Watershed Metric	EPA Rating and Description
Overall Watershed Quality	5 – More Serious Water Quality Problems, Low Vulnerability to Stressors
Designated Use	Insufficient Data
Fish and Wildlife Consumption Advisories	Insufficient Data
Source Water Indicators (Drinking Water)	Insufficient Data
Contaminated Sediments	Better – Low Degree of Concern
Ambient Water Quality – Toxics	Less Serious – 11 to 50%, Observations Exceeding Selected Reference Level
Ambient Water Quality – Conventional	Better – 0 to11%, Exceeding Selected Reference Level
Wetland Loss	Less Serious – Moderate Level of Loss
Aquatic/Wetland Species at Risk	Low – 1 Species Known to be at Risk
Pollutant Loads – Toxics	Low – No Aggregate Loads in Exceedance
Pollutant Loads – Conventional	Low – No Aggregate Loads in Exceedance
Urban Runoff Potential	Moderate – 1 to 4%, Land Above 25% Imperviousness
Agricultural Runoff	Moderate – Moderate Level of Potential
Population Change	High – Greater Than 7% change
Hydrologic Modification by Dams	High – Moderate Volumes of Impounded Water
Estuarine	Not Applicable
Atmospheric Deposition of Nitrogen	Low – <=7 kg/ha/yr

The information is drawn from the EPA characterization of the Lower Boise Watershed, USGS HUC 17050114, and applies to both watersheds unless otherwise noted (EPA, 1999b).

Table D.1-2 Baseline Socioeconomic Statistical Characterization of the Boise Affected Environment

Characteristic	Eighth Street Fire Community (1)	Boise City	Ada County	Watershed Region (2)
Population Size	14,579	125,738	205,775	298,950
Land Area (sq. mi.)	118.7	46.1	1,055.0	2,539
Rural Population (%)	12.2	0.0	12.1	23.9
Minority Composition (%)	4.3	5.5	5.2	8.19
Poverty (% at or below)	6.5	9.4	8.8	10.7
Per Capita Income	$22,200	$15,208	$14,268	$12,916
Total Employment	7,764	65,815	104,423	144,836
Principal Economic Sectors	Trade, Services Manufacturing	Trade, Services, Manufacturing	Trade, Services, Manufacturing	Trade, Services, Manufacturing
Agricultural Acreage	(3)	(4)	232,879	901,438
Average Farm Size (acres)	(3)	(4)	198	247
Principal Crops	(3)	(4)	Cattle, Poultry, Wheat Barley, Sugar beets, Hay	Cattle, Wheat, Barley, Beans
Housing – Median Year Constructed	1971	1970	1973	(3)
Housing – Median value	$97,600	$67,600	$70,400	(3)
Housing – Lived in Same House Since 1985 (%)	47.0	41.3	44.1	(3)

Sources: U.S. Bureau of the Census: Census of Population and Housing, 1990, 1992 Economic Census, and 1992 Census of Agriculture.

Notes:

(1) Aggregated from Census Tracts 0101, 0002, and 0007.
(2) Not determined for this level.
(3) Urbanized area – no agricultural production.
(4) Aggregated at the county level.

D.1.2 Buena Vista, Virginia — Maury River Watershed

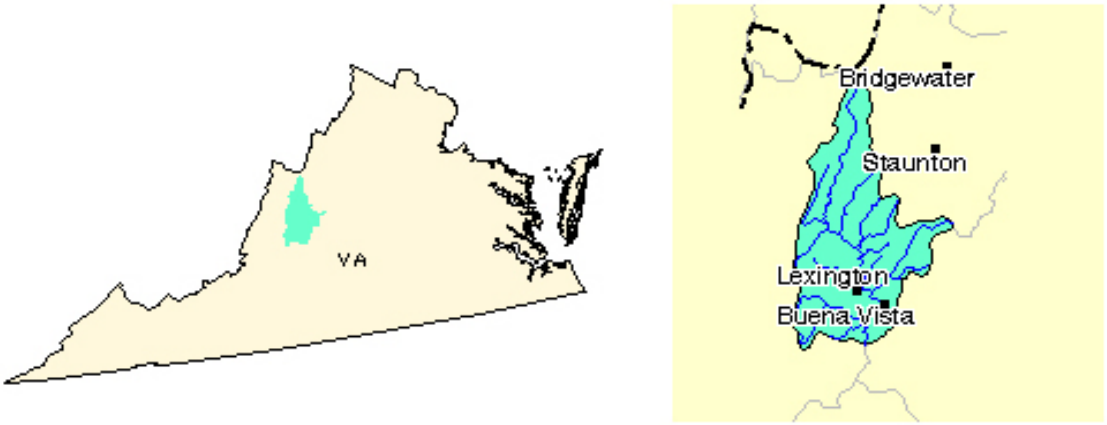

Fig. D.1-4 Location Map and Watershed Configuration of Maury River Watershed USGS HUC Unit 02080202, EPA overall watershed rating: 3

The City of Buena Vista is in eastern Rockbridge County between the east bank of the Maury River and the west slope of the Blue Ridge Mountains adjacent to George Washington and Jefferson National Forests (GWJNF) (see Fig. D.1-4). Four streams that drain the National Forests' slopes flow through town and enter the Maury River.

D.1.2.1 Disaster Event

In September 1996, rainstorms from Hurricane Fran swept through the area and flooded the four tributary streams that run through Buena Vista (Fig. D.1-5). Heavy loads of debris choked stream outlets, leaving the town under several feet of water. Severe erosion along streambanks threatened a number of homes and businesses.

Fig. D.1-5 City of Buena Vista with George Washington and Jefferson National Forests in background

D.1.2.2 Site Description

The Buena Vista watershed's four streams, Chalk Mine Run, Indian Gap Run, Noel's Run, and Pedlar Gap Run, flow to the west off the Blue Ridge Mountains through the city and into the Maury River along the city's waterfront. All originate in Forest Service lands above the city in the Blue Ridge Mountains. The watershed's 11,850 acres consists of 8,900 acres of forestland (most of which is in the GW&JNF), 2,850 acres of urban land, and 100 acres of grassland (there is no cropland in the watershed). Ownership of land in the watershed is 74.3 percent federal, 24.2 percent private, and 1.5 percent city.

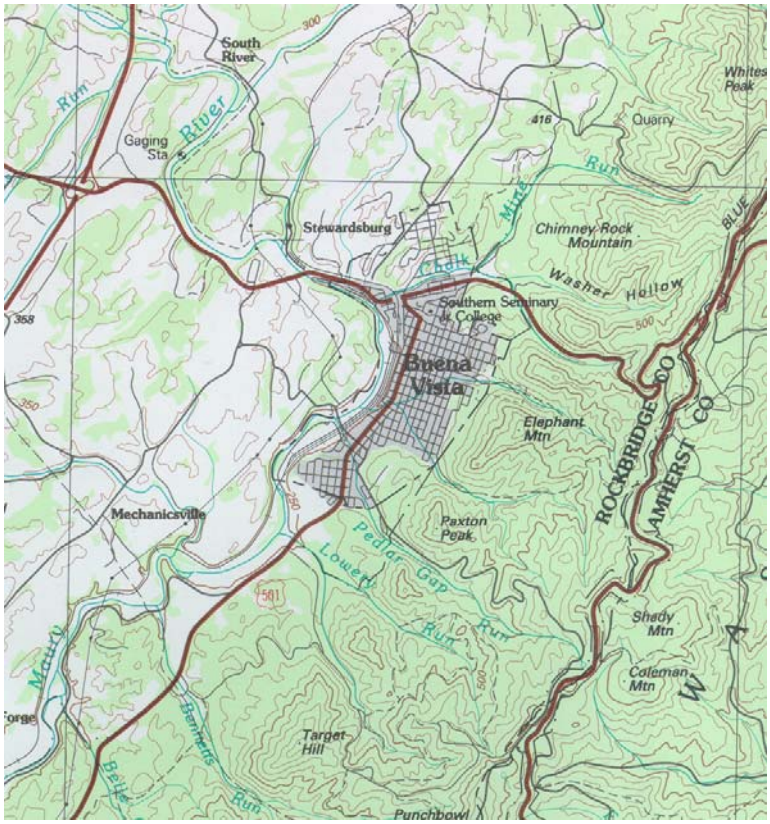

Fig. D.1-6 Buena Vista, Virginia EWP Site Map – Extensive 1995 Flooding Occurred in Four Streams that Run Through the City.

The Buena Vista watershed is a subbasin of the Maury River Watershed (USGS HUC 02080202), which originates about 40 miles north of Buena Vista on the eastern slopes of the Appalachian Mountains (see Fig. D.1-6). The Maury River has a drainage area of 835 square miles, of which 649 square miles are above Buena Vista and 184 square miles are downstream of the city (Rockbridge County, 1996).

The cumulative impacts analysis was first performed on that watershed because of the concentration of other connected, similar and cumulative actions on the stream reaches of the Buena Vista watershed (see *Table 5.4-1 –Cumulative Actions–Buena Vista Watershed*). The NRCS chose to perform the cumulative impact analysis in the Maury River watershed for several reasons: the relationship of turbidity and sedimentation to warm water fisheries in the lower reaches of the Buena Vista watershed; the location of the Buena Vista watershed in relation to the Maury River watershed; and the preponderance of agricultural land in the latter.

Where it flows through the City of Buena Vista, the Maury River is about 150 feet wide, approximately 1 to 4 feet deep, and has an average gradient drop of 10 ft/mi. Environmentally sensitive closed drainage areas, related to limestone bedrock formations, occur in the Maury River watershed (Rockbridge County, 1996) but have not been identified in the Buena Vista

watershed. In these areas, streams discharge into bedrock formations instead of a river, eventually reaching groundwater. Evidence of both prehistoric and historic occupation of the floodplain of the Maury River has been found in Buena Vista (USACE, 1990). There are no dams on the four streams and no wetlands or threatened and endangered species have been identified in the watershed (NRCS, 1999).

Flooding has been a consistent problem in the Buena Vista watershed and particularly within the City of Buena Vista itself since the late 1700s when the area became settled (Rockbridge County, 1996). This is due to the location of much of the city's business and residential districts within the floodplain, extensive storm runoff from the steep watershed east of the city, and restrictions to that flow created by undersized culverts and bridges on the railroad lines along the Maury River. Extensive flooding resulting from Hurricanes Camille (1969) and Agnes (1972), as well as from more localized storms in 1985 and 1995, led to extended planning, and the construction in 1997 of a floodwall between the city and the Maury River by the USACE (USACE, 1990, 1992).

Since 1997, the floodwall has protected the city from flooding that originates in the upstream Maury River watershed. The floodwall, however, was not designed to alleviate the problem of flooding from the local watershed. Accordingly, Public Law 566 Watershed Plan/EIS was recently completed for the four streams in the watershed (NRCS, 1999). In combination with the floodwall, the Public Law 566 project is designed to eliminate the city's long-standing flooding problems.

The current flooding trend in the Buena Vista watershed culminated with Hurricane Fran in 1996. After Fran, FEMA, HUD, the Virginia Department of Emergency Services, the City of Buena Vista, and numerous private parties performed a variety of emergency restoration and mitigation projects. In the absence of performing the EWP Program practices and these other flood remediation actions, authorities feared that flooding and watershed damage would continue to occur unabated in the watershed (NRCS, 1999).

The EWP Program actions for which this cumulative impacts analysis is being performed are the same practices that are analyzed for direct and indirect impacts in Section 5.2.2. These practices involved using backhoes to remove cobble and sediment debris from Chalk Mine Run, Pedlar Gap Run, and Indian Gap Run, hauling the debris from the sites in dump trucks, and disposing of the debris by reusing it to stabilize work roads and construction staging areas. The biologic effects of these practices are discussed in Section 5.2.2.

D.1.2.3 Enduring Conservation Practices in the Maury

There are four enduring conservation practice sites located in the Maury River watershed, all upstream of the City of Buena Vista and on private farms (Fig. D.1-7). The four practices represented are: a diversion, a waste storage pond, an embankment pond, and a grassed waterway. Each of these sites is fully functional and has not failed during their lifespan, even in the heavy rains that caused the severe flooding in Buena Vista. Therefore, hypothetical failures have been analyzed with available information about the sites and the possible environmental

effects. On each site, there are no wetlands present, no T&E species are known to exist, nor are any cultural resources present (Flint 1999).

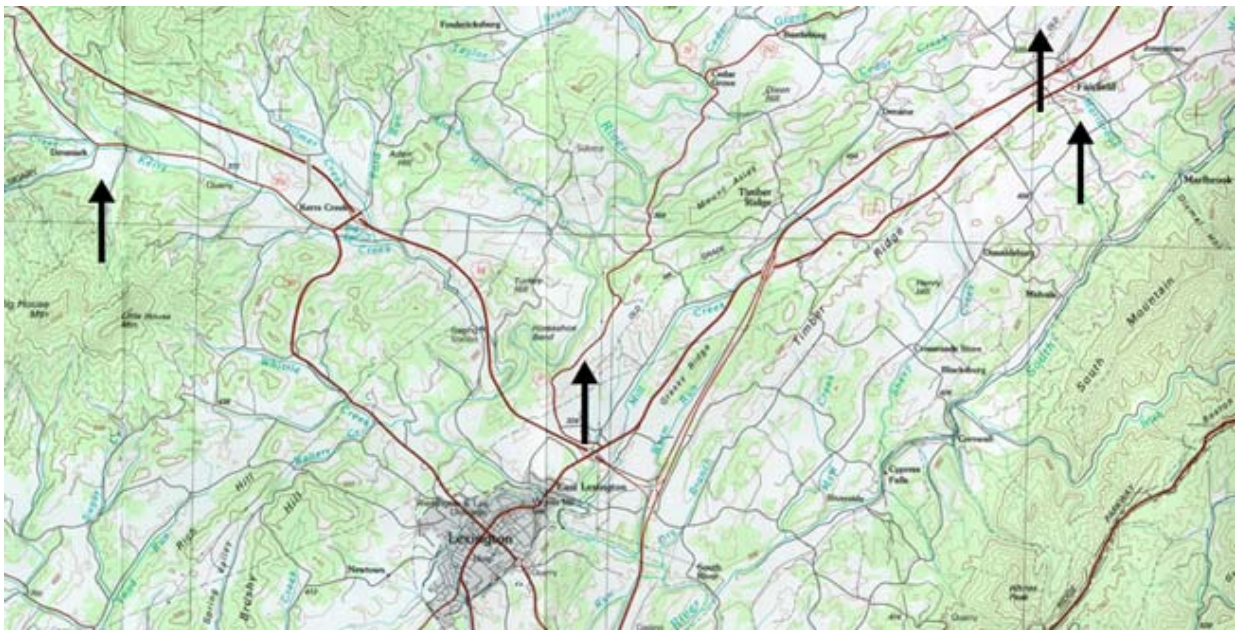

Fig. D.1-7 Maury River Enduring Conservation Practices Site Map. From left to right, a diversion, an embankment pond, an animal waste pond, and a grassed waterway.

The diversion is found on the Goodbar farm just to the south of the town of Denmark. The area is moderately steep, as it is part of the downward slope from Big House Mountain to Kerr's Creek below. The diversion is located away from existing stream channels and protects the downslope croplands from overland flow of rainfall and subsequent erosion. The water is channeled into a waterway and routed around the croplands.

Fig. D.1-8 Example of an Embankment Pond

An embankment pond is located on the Hickman farm, east of Horseshoe Bend in the Maury River. It is in an upslope area that drains into an unnamed intermittent stream and eventually into the Maury River approximately two miles below. It was built where two hills converge and serves to collect the runoff from each, preventing excessive runoff in the pasture and residences below.

The waste storage pond is found on the Martin farm, to the north of the town of Fairfield. The waste from the dairy on-site is collected and dried within the pond before eventually being applied to agricultural fields. There is no outflow from the pond and no stream channels are located nearby, although intermittent portions of Marlbrook Creek are a quarter of a mile away.

Fig. D.1-9 Example of a Waste Storage Pond

Fig. D.1-10 Example of a Grassed Waterway

The grassed waterway site is found on the Moore farm to the southwest of the town of Raphine. The waterway routes runoff waters around agricultural land to prevent erosion. The grassy vegetation, a tall fescue, is used to slow flow velocities and prevent erosion of the waterway. The site drains into an unnamed tributary and eventually into Moore's Creek approximately a half mile downstream.

D.1.2.4 Baseline Environmental and Socioeconomic Conditions in the Watershed and the Communities

Baseline environmental conditions include both biological conditions that interact within the Maury River watershed, and socioeconomic and other human resource interactions that occur both within and outside the watershed. Table D.1-3 summarizes baseline biological environmental conditions. Baseline socioeconomic conditions for the Buena Vista and Maury communities are summarized in Table D.1-4.

Table D.1-3 Buena Vista and Maury River Watershed Baseline Environmental Conditions

Watershed Metric	EPA Rating and Description
Overall Watershed Quality	3 – Less Serious Water Quality Problems, Low Vulnerability to Stressors
Designated Use	Less Serious – 50 to 80% meeting all uses
Fish and Wildlife Consumption Advisories	Insufficient Data
Source Water Indicators (Drinking Water)	Less Serious – No Significant Source of Impairment
Contaminated Sediments	Better – Low degree of concern
Ambient Water Quality – Toxics	Better – 0 to 11%, Exceeding EPA Criteria
Ambient Water Quality – Conventional	Better – 0 to 11%. Exceeding EPA Criteria
Wetland Loss	More Serious – High Level of Loss
Aquatic/Wetland Species at Risk	Moderate – 2 Species Known to be at Risk in Maury River Watershed (James spinymussel (Pleurobema collina) and the Dwarf wedge mussel (Alasmidonta heterodon) identified in Maury River watershed)
Pollutant Loads – Toxics	Low – No Aggregate Loads in Exceedance [Siltation and Sedimentation]
Pollutant Loads – Conventional	Low – No Aggregate Loads in Exceedance
Urban Runoff Potential	Moderate to High – NRCS EIS Rates Runoff and Flooding in Urban Floodplain as Major Problem Necessitating its Proposed Action
Agricultural Runoff	Moderate – Moderate Level of Potential Impact
Population Change	Moderate – 0 to 7% Change
Hydrologic Modification by Dams	Moderate – Moderate Levels of Impounded Water
Estuarine	Not Applicable
Atmospheric Deposition of Nitrogen	Less Serious – <=7 kg/ha/yr

The information is drawn from the EPA characterization of the Maury River Watershed, USGS HUC 02080202, and applies to both watersheds unless otherwise noted (EPA, 1999a).

Table D.1-4 Baseline Socioeconomic Statistical Characterization of the Buena Vista Affected Environment

Characteristic	Chalk Mine Run Community (1)	Buena Vista City	Rockbridge County	Watershed Region (2)
Population Size	1,180	6,406	18,350	34,576
Land Area (sq. mi.)	0.7	6.8	599.7	1,344.4
Rural Population (%)	0.0	0.0	100	100
Minority Composition (%)	10.3	4.9	3.9	2.7
Poverty (% at or below)	11.3	14.4	13.6	11.0
Per Capita Income	$8,984	$10,241	$11,287	12,005
Total Employment	(3)	3,149	8,679	16,974
Principal Economic Sectors	(3)	Manufacturing, Trade, Construction	Manufacturing, Trade, Construction	Manufacturing, Trade, Services(5)
Agricultural acreage	(4)	(4)	141,766	476,218(5)
Average Farm Size (acres)			220	271(5)
Principal Crops	(4)	(4)	Cattle, Corn, Soybeans, Hay	Cattle, Chicken, Corn, Wheat, Soy, Hay(5)
Housing – Median Year Constructed	1964	1957	1963	(3)
Housing – Median value	$37,700	$43,300	$54,700	(3)
Housing – Lived in Same House Since 1985 (%)	50.3	62.6	60.7	(3)

Sources: U.S. Bureau of the Census: Census of Population and Housing, 1990, 1992 Economic Census, and 1992 Census of Agriculture.

Notes:

(1) 1990 Defined by Census Block 9906.98-2.

(2) Defined by Rockbridge County and portions of Bath (blocks 9801-1, 9801-6) and Augusta Counties (blocks 0701-1, 0702-1,0709-1,0710-2,3 and tracts 0708 and 712.98) and does not include the urbanized areas of Buena Vista and Lexington.

(3) Not determined for this level.

(4) Urbanized area – no agricultural production.

(5) Aggregated at the county level for the three counties.

D.1.3 East Nishnabotna River Watershed, Iowa

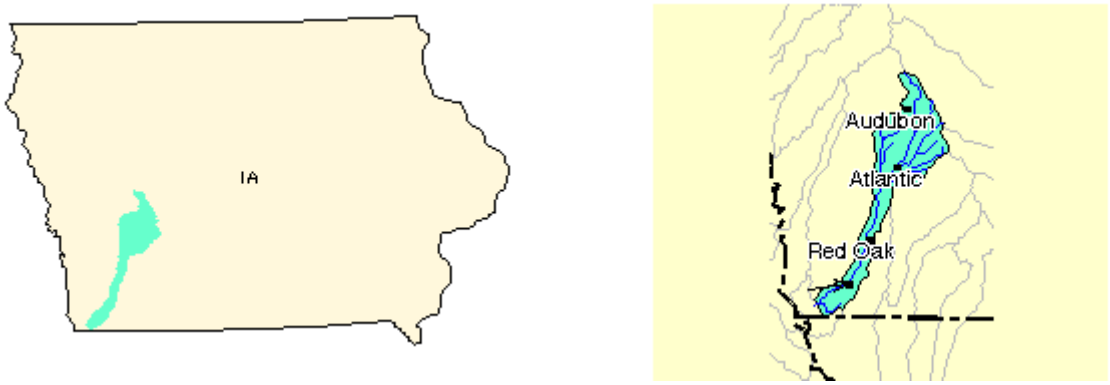

Fig. D.1-11 Location Map and Watershed Configuration of East Nishnabotna Watershed USGS HUC 10240003, Overall EPA watershed rating: 3

The East Nishnabotna River originates between the towns of Manning and Templeton in Carroll County, Iowa (see Fig. D.1-11). It flows south-southwest for 90 miles through Montgomery, Page, and Fremont counties to its confluence with the West Nishnabotna River, ten miles before they join the Missouri River.

D.1.3.1 Disaster Event

Rains in 1998 caused flooding that impaired streams and levees in Fremont and Montgomery counties. Levee repair in Fremont County and woody debris removal and riprap placement in Montgomery County were conducted under the EWP Program. The biologic effects of these practices are discussed in Chapter 5, Sections 5.2.1, 5.2.2, 5.2.3, and 5.2.4.

D.1.3.2 Site Description

The East Nishnabotna River watershed has an area of 1,133 square miles (see Fig. D.1-12). The area is a gently rolling portion of the Great Plains ecoregion, with 100 to 150 feet of terrain relief from the river valley floors. The watershed is almost completely agricultural. According to the EPA watershed characterization, crops occupy almost all of the land, except for about 11 percent that is covered by forest vegetation, most of which is in the stream valleys (EPA, 1999c). None of the watershed is characterized as urban, although the cities of Sidney, the Fremont County Seat, and Red Oak, the Montgomery County Seat, and a number of other small cities and towns (such as Shenandoah where one of the EWP practices took place) are in the watershed.

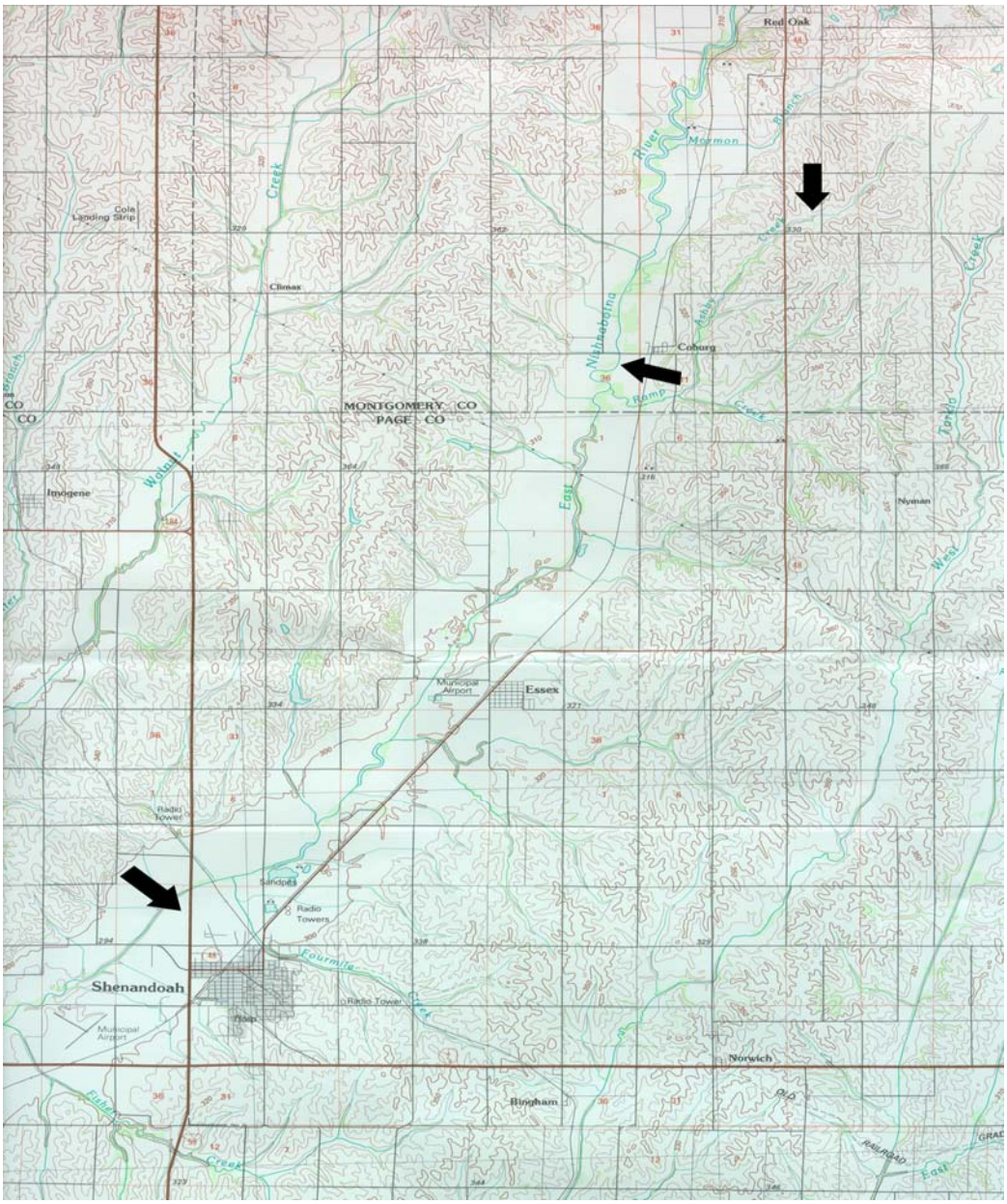

Figure D.1-12 East Nishnabotna River, Iowa, EWP Program site map – Projects shown by arrows

The appropriate watershed for cumulative impact analysis was the entire East Nishnabotna River (8-digit HUC) watershed. EWP Program practices under analysis were performed on the main stem of the river. Particular attention was given, however, both to the specific reaches of the river on which the EWP Program practices took place, and to actions affecting the river floodplain in the reaches above and below the EWP Program practices.

D.1.3.3 Riverton Easement

The Riverton floodplain easement site is located just to the east of the town of Riverton, Iowa, along the East Nishnabotna River (Fig. D.1-11). The tract is approximately 655 acres of lowland and subsequently must be protected by levees (Fig. D.1-13). Historically, the land has been exclusively in crops but has faced levee breaches on the order of every three years, causing the landowner to spend more than a quarter of a million dollars in repairs in addition to substantial NRCS expenditures. In 1999, the property was damaged, prompting the landowner to apply for an EWP easement. This part of the East Nishnabotna is a traditionally problematic area for flood damages and was therefore identified as a priority area for easement purchase. There are also 6 other sites awaiting EWP easement purchase along the East Nishnabotna (Hanson 1999).

Fig. D.1-13 Floodplain Easement Site, Riverton, Iowa, East Nishnabotna Watershed EWP Program Site Map, project location outlined in red

Due to the repeated damage to the property, the site was a good candidate for the easement program. Since the property is at a lower elevation than the surrounding area, it retains water each spring and will be restored as a wetland. There is an existing forested wetland on the northern portion of the property along the river and runoff from the town of Riverton also contributes to the wet conditions. Water control structures and ditch plugs will be constructed to manage areas of varying water depths to promote wetland revegetation and waterfowl habitat, as well as increasing floodwater retention capability. There will be no planting, as the site is too wet, and the vegetation will be allowed to proceed naturally (Hanson 1999).

Once the easement is purchased, the land will be sold to the Iowa Department of Natural Resources via a third party organization to assist in the transfer. The easement will then

become part of the Riverton State Game Management Area, a large reserve with several hundred acres of wetland just upstream on the opposite bank. The contiguous area of managed lands will create a large floodplain area and substantial habitat for migratory waterfowl and other species, such as reptiles, amphibians, songbirds, and some fish (Priebe 1999).

D.1.3.3 Baseline Environmental and Socioeconomic Conditions in the Watershed and the Communities

Baseline environmental conditions include both biological conditions that interact within the East Nishnabotna River watershed, and socioeconomic and other human resource interactions that occur both within and outside the watershed. Table D.1-5 summarizes baseline biological environmental conditions. Baseline socioeconomic conditions for the Nishnabotna communities are summarized in Table D.1-6.

Table D.1-5 East Nishnabotna River Watershed EPA Baseline Environmental Conditions

Watershed Metric	EPA Rating and Description
Overall Watershed Quality	3 – Less-Serious Water Quality Problems, Low Vulnerability to Stressors
Designated Use	Less Serious – 50 to 80% Meeting all Uses
Fish and Wildlife Consumption Advisories	Insufficient Data
Source Water Indicators (Drinking Water)	Better – No Significant Source of Water Impairment Identified
Contaminated Sediments	Better – Low Degree of Concern
Ambient Water Quality – Toxics	Insufficient Data
Ambient Water Quality – Conventional	Insufficient Data
Wetland Loss	More Serious – High Level of Loss
Aquatic/Wetland Species at Risk	Insufficient Data
Pollutant Loads – Toxics	Low – No Aggregate Loads in Exceedance
Pollutant Loads – Conventional	Low – No Aggregate Loads in Exceedance
Urban Runoff Potential	Low – 0 to 1% Imperviousness
Agricultural Runoff	High – High Level of Potential Impact
Population Change	Low – No change
Hydrologic Modification by Dams	Moderate – Moderate Levels of Impounded Water
Estuarine	Not Applicable
Atmospheric Deposition of Nitrogen	Less Serious – <=7 kg/ha/yr

The information is drawn from the EPA characterization of the East Nishnabotna River Watershed, USGS HUC 10240003 (EPA, 1999c).

Table D.1-6 Baseline Socioeconomic Statistical Characterization of the East Nishnabotna Affected Environment

Characteristic	Walnut Township Community (1)	Shenandoah City	Fremont County	Page County	East Nishnabotna Watershed Region (2)
Population Size	1,071	5,572	8,226	16,870	20,424
Land Area (sq. mi.)	115.0	3.1	568.4	563.9	862.5
Rural Population (%)	100	0.0	100	36.7	42.1
Minority Composition (%)	0.4	3.2	1.0	2.4%	14.9
Poverty (% at or below)	14.2	16.0	12.2	13.8%	11.0
Per Capita Income	$10,962	$10,954	$10,674	$11,122	$11,787
Total Employment	474	2,494	3,742	7,986	9,517
Principal Economic Sectors	Agriculture, Services, Trade	Trade, Services, Manufacturing	Services, Trade, Agriculture,	Trade, Services, Manufacturing	Trade, Services, Agriculture
Agricultural acreage	(3)	(4)	302,352	318,778	861,230 (5)
Average Farm Size (acres)	(3)	(4)	507	348	405 (5)
Principal Crops	(3)	(4)	Corn, Soybeans, Hogs	Corn, Soybeans, Hogs	Corn, Soybeans, Hogs
Housing – Median Year Constructed	1939	1949	1947	1944	(3)
Housing – Median Value	$32,500	$35,100	$32,000	$33,700	(3)
Housing – Lived in Same House Since 1985 (%)	73.0	59.3	64.7	62.6%	(3)

Sources: U.S. Bureau of the Census: Census of Population and Housing, 1990, 1992 Economic Census, and 1992 Census of Agriculture.

Notes:
(1) Defined by Census block 9701-1.
(2) Aggregated from portions of Page Co. (Census 9901-3,9901-4,9902, 9903), Fremont Co. (Census 9701-1, 9701-2, 9701--3, 9703-1, 9703-2) and Montgomery Co. (Census 9801- 2, 9801-5, 9802, 9804-1).
(3) Not determined for this level.
(4) Urbanized area – no significant agricultural production.
(5) Aggregated at the county level for Fremont, Page, and Montgomery.